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ABSTRACT

The purpose of this study was to verify and explain the relationships between NJROTC experience and Navy enlistment; and to develop a plan for a more complete evaluation. Data were gathered by means of school application files, site interview questionnaires and mailback questionnaires. The major conclusion was that there is no positive relationship between NJROTC and future enlistment. A few additional tentative conclusions were drawn concerning the nature of NJROTC units and instructors in various school communities. The recommendation to carry out a longitudinal study along the same lines was made. (Appendixes contain samples of the questionnaires, file data tabulations, site listing information, and further information about variables relating to employment in the Navy and objectives of the NJROTC) (KP)

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Technical Report No. 779

ORI

EVALUATION OF NJROTC INFLUENCE ON NAVY ACCESSIONS

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30 September 1973

Prepared under ONR Contract No. N00014-73-C-0422
for the Navy Personnel Research and Development Center,
San Diego, California

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OPERATIONS RESEARCH, Inc.

SILVER SPRING, MARYLAND

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Members of the ORI staff who completed the project were Michael W. Brown, W. Thomas Callahan and Oedies W. Davis. Thomas N. Kyle of ORI was senior technical advisor to the study.

SUMMARY

BACKGROUND

The Naval Junior Reserve Officers Training Corps is a program for senior high school students which attempts to promote orderliness, precision, respect for authority, patriotism, personal honor, self-reliance, self-discipline and leadership. The program also provides a means for students to become better informed on national security affairs and the role of the U.S. Navy in the national defense. Neither the legislation establishing NJROTC nor any of the program documentation mentioned recruiting as an objective of NJROTC. Reports of enlistments, however, indicated that a positive relationship between NJROTC and Navy recruitment apparently did exist.

PURPOSE

The objectives of this study were to verify and explain the apparent positive relationship between NJROTC and enlistment, and to develop a plan for a more extensive evaluation of NJROTC.

FINDINGS AND RECOMMENDATIONS

The apparent positive relationship between NJROTC and enlistment was not verified. NJROTC units were located in 91 ZIP Code areas in the

school year 1971-1972. In only 13 of those areas was the NJROTC-related percentage of total enlistments higher than the NJROTC-related percentage of total students. In 66 areas, the NJROTC-related percentage of total enlistments was lower than the NJROTC-related percentage of total students. In 22 of these 66 areas, the NJROTC-related percentage of enlistments was zero. No useful estimate could be made for 12 of the 91 ZIP Code areas.

Based on a review of NJROTC files and interviews with a small number of NJROTC instructors and students, additional tentative conclusions can be drawn. NJROTC units appear to vary greatly; they appear to be fully integrated with the overall pattern of courses in the schools that offer them; they appear to be subject to the same community pressures that other voluntary courses and activities suffer; NJROTC instructors appear to be sensitive to the total school program and to community trends and adopt their programs accordingly.

Although the NJROTC instructors interviewed did report that they would be pleased if students entered the Navy, and one actively assisted and supported the processes of enlistment, all appeared to be oriented to the needs of the individual student, not to the needs of the Navy. Such an orientation does not, in ORI's opinion, reflect an interest in "recruiting" as that word is usually construed.

The NJROTC program is heavily concentrated in eleven southern states, which have about 25% of the total U.S. population and about 56% of all NJROTC units (1971-1972 school year).

Less than 30% of NJROTC units are located within 25 miles of a naval installation.

Of the schools that have NJROTC units, about 61% are urban, 20% suburban and 17% rural.

Only 7.4% of NJROTC units are found in schools which are college preparatory only. Over 86% of NJROTC units are found in comprehensive high schools that offer a variety of college preparatory, vocational and general

courses. For the remaining 6.4%, no data reflecting their type were available.

During the 1971-1972 school year, about 17% of schools which have NJROTC units had predominantly or significantly black enrollments. About 2% had predominantly Mexican-American or American Indian enrollments, and the remainder, 81%, had predominantly white enrollments.

The average number, per school, of 1972 graduates who had completed one or more years of NJROTC was approximately 19.

Comparison of enrollments in NJROTC units that were one, two, three, four and five years old did not show conclusively that enrollment increases as the age of the unit increases.

TABLE OF CONTENTS

		Page
	ACKNOWLEDGMENTS	i
	SUMMARY	iii
	LIST OF TABLES	ix
I.	BACKGROUND AND PURPOSE	1
	THE NJROTC PROGRAM	1
	PURPOSE OF THE STUDY	3
II.	DATA COLLECTION PROCEDURES	5
	REVIEW OF NJROTC BACKGROUND INFORMATION	5
	REVIEW OF NJROTC PROGRAM INFORMATION	7
	Quality of the Data; File Data Findings	
	SITE VISITS	12
	Attitudes Toward NJROTC; NSI's Objectives for NJROTC; Recruiting Generally Not an Objective; Sources of Information About NJROTC; Reasons for Joining NJROTC; Reasons Why Students Drop Out of NJROTC; Implications of Site Visits	
	REVIEW OF NAVY ENLISTMENT DATA	17
	REVIEW OF NAVY INSTALLATION DATA	18
	REVIEW OF NATIONAL SCHOOL DATA	19

III. PRELIMINARY ASSESSMENT OF NJROTC INFLUENCE ON NAVY ACCESSIONS 23

NATIONAL PERSPECTIVE 23

ESTIMATE OF IMPACT FROM PERSPECTIVE OF ALL AREAS IN WHICH NJROTC UNITS EXIST. 24

ESTIMATE OF IMPACT IN EACH ZIP CODE AREA IN WHICH NJROTC UNITS EXIST 26

ESTIMATE OF IMPACT IN EACH SCHOOL IN WHICH NJROTC EXISTS 29

COMPARISON OF NJROTC INFLUENCE ON NAVY ACCESSIONS WITH INFLUENCE OF OTHER JROTC PROGRAMS. 31

IV. IN-DEPTH EVALUATION PLAN 33

SPECIFICATION OF DEPENDENT VARIABLES 34

OBSERVABILITY OF DEPENDENT VARIABLES. 34

COMPARISON GROUPS 35

SCHEDULE OF OBSERVATIONS 36

Baseline Period; High School Period; Post High School Period

CLASSIFICATION VARIABLES 38

ALTERNATIVE APPROACHES TO DATA COLLECTION 39

Reducing the Scope of the Data Collection; Simulating a Longitudinal Study; Studying Only Navy Servicepersons

APPENDIX A: MAIL-OUT QUESTIONNAIRE 45

APPENDIX B: FILE DATA TABULATIONS 51

APPENDIX C: SITE VISIT INTERVIEW QUESTIONNAIRES 57

APPENDIX D: NAVY INSTALLATIONS SELECTED BASED ON MAPMIS REPORT OF ON-BOARD COUNT AS OF MARCH 1973 BUREAU OF NAVAL PERSONNEL 69

APPENDIX E: NJROTC-RELATED ENLISTMENT DATA BY ZIP CODE AND LOCATION, JULY 1972 THROUGH DECEMBER 1972 73

APPENDIX F: VARIABLES RELATING TO EMPLOYMENT IN THE NAVY AND OBJECTIVES OF NJROTC 77

LIST OF TABLES

		Page
3.1	Zip Code Areas with Greater than Expected Percentage of Enlistees from NJROTC Schools	27
E.1	NJROTC-Related Enlistment Data by ZIP Code and Location, July 1972 through December 1972	75
F.1	Variables Relating to Employment in the Navy and Objectives of NJROTC	79

I. BACKGROUND AND PURPOSE

THE NJROTC PROGRAM

The Naval Junior Reserve Officers Training Corps NJROTC was established by Public Law 88-647, "Reserve Officers' Training Corps Vitalization Act of 1964," dated 13 October 1964. It is a program for senior high school students, and attempts to achieve the following objectives:

- To promote habits of orderliness and precision and to develop respect for constituted authority
- To promote patriotism
- To develop a high degree of personal honor, self-reliance, individual discipline and leadership
- To provide a means for students to become better informed citizens on matters of national security and to develop a knowledge and an appreciation of the U.S. Navy's role in the national defense structure.

Those objectives are important for this study because they omit, intentionally, the subject of recruiting from the mandate of the NJROTC program.

That is, NJROTC was designed in the legislation and implemented by the Navy and participating schools as an integral part of the educational and overall personal development of its participants. Nothing was found in NJROTC plans or program documents to suggest that NJROTC is oriented to recruiting persons to the Navy, although increased awareness of the Navy is clearly intended. 1/

Several aspects of the NJROTC program actually guard against the use of an NJROTC program in a school as a vehicle for recruiting. First, the program parallels the college NROTC program and focuses primarily on the concerns of officers, not of enlisted personnel. Second, the Naval Science Instructors (NSI) and Assistant Naval Science Instructors (ANSI), although they are Navy retirees, are employed by the local school systems and are hired and supervised, not by the Navy, but by their respective school principals. Third, local Navy recruiters do not visit NJROTC units except with the approval of the NSI. Since the NSI is the employer of the school, the presumption is that the NSI would not allow a visit by a recruiter if he had not obtained the approval of the principal.

1/ In 1963, the Department of Defense advocated the discontinuation of all JROTC programs specifically because they did not appear to encourage participants to obtain commissions or to enter enlisted ranks. Because of strong Congressional opposition, JROTC was retained and JROTC units were established for the Navy, Air Force and Marines. This had the effect of expanding the authorization for JROTC from 255 units, all operated by the Department of the Army, to 1200 units shared among the four services.

Thus, the absence of recruiting as an objective in the current obtained legislation is partially the result of Congressional reaction to an Executive Branch attempt to discontinue JROTC. P.L. 88-647 essentially says that the value of JROTC cannot be estimated from a count of enlistees or newly commissioned offices because recruiting is not the goal established for the program by the founding legislation.

Despite the apparent separation of NJROTC operations from recruiting efforts, data collected in FY 1973 by the Bureau of Naval Personnel and the Navy Recruiting Command suggested that the presence of NJROTC programs and the JROTC programs of the other service branches may have a heavy influence on Navy enlistments.

If a high percentage of Navy enlistments were coming from NJROTC schools, NJROTC administrators would be required to raise important questions. Why was this occurring? Were NJROTC instructors actually acting as recruiters? Were the schools that housed NJROTC programs coincidentally located in regions where enlistment is common, even without NJROTC. Did NJROTC enlistees come primarily from cities where naval installations are located? Did these enlistees come from families with a history of naval service? Did they intend to enlist in the Navy even before they were exposed to the NJROTC experience?

Other questions concerning NJROTC as a program for developing human resources were also raised. If so many NJROTC students were enlisting, did this mean that NJROTC had dissuaded them from seeking a higher education which may have prepared them for service as an officer? Did the NJROTC experience, a less rigorous than actual Navy or Naval Academy training, mislead students and, thus, adversely affect their performance in the Academy or in the Navy? Or, rather, is there any evidence that NJROTC experience provided preparation for excellence in academic and military endeavor?

PURPOSE OF THE STUDY

ORI contracted with the Naval Personnel Research and Development Laboratory to: (1) conduct a preliminary evaluation to verify and explain the relationships between NJROTC experience and Navy enlistment; and (2) develop a plan for a more complete evaluation that could be undertaken if necessary and desirable. Such a complete evaluation would reflect NJROTC influence not

only on accessions but on NJROTC participants' and non-participants' knowledge of and attitudes toward the Navy, on NJROTC participants performance in the Navy, and on retention of NJROTC participants in the Navy beyond the first term of service.

II. DATA COLLECTION PROCEDURES

REVIEW OF NJROTC BACKGROUND INFORMATION

Although ORI staff had some basic knowledge of NJROTC, the necessary first step of this study was to achieve a more complete understanding of the NJROTC program. ORI reviewed five types of basic information concerning the program.

- A large folder, entitled, "Reference Material for Members of the Ad Hoc Committee Charged with Reviewing the Junior Division ROTC and the National Defense Cadet Corps Programs." This folder was prepared in 1963 and contained voluminous backup material and historical documents that preceded the introduction of H.R. 9124 in 1963 (which became P.L. 88-647 of 1964,) the legislation which established NJROTC as it now exists.

  This historical material demonstrates the constancy of the armed services concern with JROTC, and the parallel, although slightly different interest, of legislation in sustaining and fostering patriotism, respect for authority

and sensitivity to national defense requirements. The memoranda, letters, speeches and reports from the pre - 1964 period also show that the same research questions faced by ORI in 1973 were under discussion in 1963.

- "Naval Junior Reserve Officers Training Corps (NJROTC) Fact Sheet," dated 1 Augusted 1972. This is a brochure which school administrators use in considering the implementation of an NJROTC program. It supplies a complete description of the history and development of the program; its aims and objectives; Navy support for and supervision of the program; selection criteria for schools which apply; the program curriculum; the amount of and administration of instructor pay; classroom and supply room space requirements; NJROTC unit equipment authorizations; NJROTC uniform authorizations (per enrollee) and answers to most frequently asked questions about NJROTC.

  The importance of the Fact Sheet for the purposes of this study can be summarized as follows: (1) It is a relatively complete statement of the restrictions which the Navy places on the program and operation of any NJROTC unit. Its brevity and generality allow for considerable variation in NJROTC instructors, their goals and attitudes, and additional variations in the ways that schools can administer, sustain or foster their NJROTC units. (2) It provides a full explanation of the administrative relationship between the school

systems and the Navy. (3) It does not mention recruiting at all, nor does it refer to the NJROTC as a means of attracting students to the Navy.

- Various address lists, telephone lists and other information pertinent to individuals involved with NJROTC.

- Monthly tabulations (July 1, 1972 to January 1, 1973) of the number of Navy enlistees who had (or had not) attended high schools housing JROTC units of each of the service branches. The source of these tabulations is the enlistment contract, which when completed by Navy personnel at the Armed Forces Enlistment Centers (AFEC's), includes a code indicating the type of JROTC unit, if any, that was present at each enlistee's high school and if the enlistee participated in an JROTC program.

REVIEW OF NJROTC PROGRAM INFORMATION

NJROTC, like many other public programs, has never been the subject of a systematic data collection and updating effort that would provide an easily accessible information base sufficient for evaluation. As anticipated, before the present study began, the only available program information is in the NJROTC files (Chief of Naval Training, Code N-122, Pensacola, Florida). This information consists of: (1) school application sheets, filed at the time the school requested a NJROTC unit; (2) annual inspection sheets on the NJROTC units; and (3) miscellaneous materials, including correspondence, newspaper clippings, school catalogs and military ceremony announcements. ORI staff determined that the school application sheets were the only available source of data on the schools, and that the inspection sheets were the only available source of information on the NJROTC units.

Files on 172 high schools were manually searched. Of these, 46 were eliminated because they were from schools that provided NJROTC for the first time in September of 1972, and thus could have had virtually no effect on accessions during 1972. Of the remaining 126 schools, 95 had complete or nearly complete files which included both school applications and program inspection sheets; 18 had program inspection sheets, but no school application sheets; six had school applications but no inspection sheets. The remaining seven files, the last seven in the alphabetical file, were included in the inspection sheet search. These were excluded, because of ORI staff error, from the school application search.

In order to test the reliability of the data on the application and inspection sheets, and to fill in gaps in the data collected, questionnaires (Appendix A) were mailed to 68 schools requesting data that was identical to that found on the school application and unit inspection sheets. Within one month subsequent to the date of questionnaire mailing (May 4, 1973), 41 responses were received. Of these 41 responses, 18 were from schools that had NJROTC units before 1972; thus, the total number of schools with complete data was increased from 95 to 113. Certain tabulations were made on the original 95 schools, and time did not permit a repetition of the tabulations with 113 schools as a base.

Quality of the Data

Based upon an analysis of 22 of the 41 schools for which there were both questionnaire data and school application (file) data, it can be concluded that the file data may not, in all cases, reflect the current conditions of the schools. For example, one data element on both the in-file application and the questionnaire was "Male enrollment - Grades 10-12." The average male enrollment of the 22 schools, as indicated on the applications submitted between 1966 and 1971 was 554. Based on responses to the questionnaires, the average male enrollment in the school year 1971-1972 was 480.

The quality of the data is also corrupted, to some extent, by the form of the application itself. (The form of the mail-out questionnaire was exactly the same.) Successive questions on the form were:

(1) Percentage of recent graduates entering college

(2) Percentage of recent graduates furthering their education.

ORI, staff could find no instructions interpreting question (2). Thus, if the person filling out the form interpreted (2) literally, he would conclude that "furthering their education" would apply to all graduates who went on for more schooling, including the percentage recorded in (1). Thus, the answer to (2) would always be equal to or greater than the answer to (1). ORI staff found, however, that this was not always the case. Answers to (2) were sometimes of lower value than those to question (1). ORI staff concluded that some applicants interpreted (2) to mean:

"Percentage of recent graduates furthering their education, other than by entering college."

On that basis, ORI determined that the data provided in response to (2) was unreliable, and that responses to question (1) were the only useable data that would reflect the tendency of a school to prepare students for further education.

It must be concluded that even for merely descriptive purposes, some of the file data are only partially reliable. It was clear from the quality of the file data and from personal conversation with NJROTC personnel that the program management function has historically had two goals:

(1) Administrative support for the initiation of new NJROTC units.

(2) Administrative and logistical support for existing units.

Systematic data collection to support full-scale evaluation of the NJROTC program has not been an objective, and the current size of the NJROTC staff would probably not allow for adoption of statistical evaluation as a program task. The function that is most clearly related to evaluation is the annual unit inspection. These inspections suffice for individual school unit review and for overall performance evaluations, but do not provide enough data for in-depth analysis of the relationship of NJROTC to variables affecting Navy enlistment, Navy knowledge and/or Navy performance.

Data Obtained From the Files:

The data on each NJROTC - affiliated school which ORI staff collected from the application files were the following:

- Name and location
- Type of community served (rural, urban, suburban)
- Male enrollment
- Number of classroom teachers
- Pupil to teacher ratio
- Percent of recent graduates entering college
- Percent of recent graduates furthering their education
- Number of courses in total curriculum (noting the presence or absence of business and technical courses)
- Percent of faculty that is male
- Number of faculty that are former service persons.

From the yearly inspection sheets, school year 1971 to 1972, the following data were collected:

- Number of NJROTC program participants, grades 10 to 12, as of the date of the inspection
- Number of 1972 graduates who had some experience in the NJROTC program (one, two, or three years)
- Number of 1972 graduates who were certified, or were to be certified, as having completed the full three year NJROTC program successfully

- Number of 1972 NJROTC graduated who entered, or were to enter, the U.S. Naval Academy
- Number of 1972 NJROTC graduates who entered, or were to enter, the academy of either the U.S. Army, the U.S. Air Force or the U.S. Coast Guard
- Unit racial composition (percentages of total unit enrollment by American Indian, Caucasian, Mexican American, Negro and other).

The NJROTC program staff in Pensacola also provided lists of schools that had significant (30% to 49%) and predominant (50% or greater) Negro enrollments.

File Data Findings

As described in Appendix B, the NJROTC program information on 95 of 126 schools provides the basis of the following findings:

- The NJROTC program is heavily concentrated in eleven southern states, which have about 25% of the total U.S. population and about 56% of all NJROTC units (1971-1972 school year).
- Less than 30% of NJROTC units are located within 25 miles of a naval installation.
- Of the schools that have NJROTC units, about 61% are urban, 20% suburban and 17% rural.
- Only 7.4% of NJROTC units are found in schools which are college preparatory only. Over 86% of NJROTC units are found in comprehensive high schools that offer a variety of college preparatory, vocational and general courses. For the remaining 6.4%, no data reflecting their type was available.

- During the 1971-1972 school year, about 17% of schools which have NJROTC units had predominantly or significantly black enrollments. About 2% had predominantly Mexican-American or American Indian enrollments, and the remainder, 81%, had predominantly white enrollments.
- The average number of 1972 graduates per school who had completed one or more years of NJROTC was approximately 19.
- Comparison of enrollments in NJROTC units that were one, two, three, four and five years old did not show conclusively that enrollment increases as the age of the unit increases.

SITE VISITS

ORI conducted site visits to four NJROTC units in the Pensacola, Florida area. The purpose of these visits was to interview NSI's and, if possible, students, to achieve some familiarity with the practical realities of NJROTC unit operations, and to obtain first-hand observations of NJROTC units' accomplishments, needs, and shortcomings. Interview outlines were prepared for the site visits and are found in Appendix C.

The sites visited were not intended to comprise a statistically valid sample. The information obtained from them should not be generalized to NJROTC units in other geographic areas, or to the national NJROTC program. The four site visits, however, do illustrate that NJROTC units vary greatly for a number of reasons, even though their basic texts, syllabi and objectives are very similar.

Attitudes Toward NJROTC

It was found that all four NSI's interviewed considered the NJROTC programs to be generally well accepted in the surrounding community, and, generally well accepted by school officials. ORI's search of the NJROTC files confirmed this opinion for virtually all programs nationwide.

NSI's and NJROTC program administrations cited several reasons why school administrators may favor NJROTC. The units represent the school to the community, not only in parades and drill exhibitions, but in a variety of public service and charitable efforts. It is also believed that NJROTC may stimulate learning in other subjects or provide a context in which otherwise disaffected students find enough educational interest to encourage them to complete high school. In this way, NJROTC may improve student graduation rates. The NJROTC syllabus itself allows for a field trip to a naval installation. Educators understand that this field trip itself is a form of educational enrichment, especially for certain students that otherwise might be confined to their local communities.

The NSI's reported that students not participating in NJROTC treated the NJROTC unit either passively or with verbal scorn. They reported no active hostility toward their units or property. The ORI staff file search turned up only a small number of units that have suffered significant vandalism or theft.

Two NSI's visited did report, however, that their NJROTC units declined in enrollment because of racial tension in the school community overall. In each case, whites and blacks dropped out of NJROTC, reportedly in an effort to avoid voluntary contact with a large number of persons of the other group who were entering the school as the result of specific desegregation actions.

This is an important finding. It demonstrates the extent to which each NJROTC unit is controlled by the social environment of the community in which it operates. Declines or growths in a voluntary school program like NJROTC probably result from many factors over which NSI's have little control. Furthermore, enrollment figures may be affected by events which have only temporary influence. As a political controversy over desegregation may dissipate over time, for example, reluctance to join NJROTC may also tend to decline.

The small number (13) of students interviewed reported that their classmates who do not participate in the NJROTC program generally tolerate the program, but that a small number heap verbal abuse upon it at times. Male NJROTC students expressed the opinion that girls admired their uniforms and that some non-NJROTC male students envied the NJROTC unit. Some NJROTC students reported that epithets had been hurled at them. For example, because of their NJROTC participation they had been referred to as "liberals" or "commie freaks." ORI staff probed to see if the students could explain the choice of these specific epithets. The students could not, nor could the NSI.

NSI's Objectives for NJROTC

The NSI's interviewed each reported their basic objective was to develop characteristics of leadership, self-reliance, and self-respect. The promotion of patriotism and imparting an appreciation of the U.S. Navy role in the national defense were somewhat lesser emphasized. One NSI added that he saw his most important function as teaching his students to solve problems of all kinds. Students said they thought the most important benefits of NJROTC to them were development of leadership ability and responsiblity. Some were seeking information about the Navy with hope of securing employment in the Navy or educational opportunities in the Naval Academy or in Naval Reserve Officer Training Corps (NROTC) programs at the college level. A smaller number said they valued the self-discipline, self-confidence and self-respect that the program seemed to help them develop.

Recruiting Generally Not an Objective

Three of the four NSI's stated that they did not see Navy recruiting as an objective of their NJROTC program. They indicated however, that entry of their graduates into the Navy would make them feel that their program was a success, or that it would please them.

One NSI was devoted to helping his NJROTC students enlist in the Navy or secure U.S. Naval Academy appointment, NROTC scholarships, or to enlist in another armed service branch. As far as ORI staff could determine, this NSI was motivated primarily by his desire to help his students achieve the training, employment, education and other experiences that he knew the Navy could provide. His view of the Navy was that it was the best career development experience that many of the local NJROTC students were likely to achieve, given their economic and social situation.

Sources of Information About NJROTC

NSI's believed that most of their students learned about the NJROTC program from peers, and during briefings given at assemblies of ninth graders or of eighth graders in feeder schools.

Students said that their friends and the school assemblies stimulated their interest in NJROTC. Thus, they confirmed the opinions of the NSI's on this subject.

Reasons for Joining NJROTC

The NSI's believed that most students joined the program to be with friends, to satisfy Navy parents, to earn credits for graduation, and to seek Navy service or Navy college education opportunities.

Students reported that their reasons for joining the program initially were to examine the opportunities for Navy employment, to face a challenge or satisfy curiosity, to satisfy their parents, or to advance overall learning goals.

Reasons Why Students Drop Out of NJROTC

NSI's believed that the primary reasons that students drop out of NJROTC were immaturity or lack of self-discipline, withdrawal from school, and parental pressure.

Students expressed the opinion that students who dropped out tended to have a poor understanding of the program when they entered. Others left because they became apathetic or unwilling to comply with the program dress code or with "orders".

For the four schools visited, the average attrition rate was 13.2% per year.

Implications of Site Visits

The four site visits suggest that NJROTC units vary greatly; that they are fully integrated with the overall pattern of courses in the schools which offer them; that they are subject, furthermore, to the same community pressures that other voluntary courses and activities suffer; that Naval Science Instructors and Assistant Naval Science Instructors appear to be sensitive to the total school program and to community trends, and adapt their programs and attitudes accordingly. The result is that the only common aspect among the units observed seems to be the curriculum itself.

All of these observations lead to the conclusion that NJROTC is an educational program that conforms with the needs of individual schools. Although the NSI's who were interviewed did report that they would be pleased if students entered the Navy, and one actively assisted and supported the processes of enlistment, all appeared to be oriented to the needs of the individual student, not to the needs of the Navy. None of the NSI's, including the one who thought that the Navy was an excellent opportunity for students' career development, ever mentioned the manpower needs of the Navy in connection with NJROTC. All seemed to focus on the personal development of

students, which seems to reflect a self-perception of educator, not of recruiter.

At the same time, each of the retired naval personnel appeared to be proud of his naval experience, and presumably exhibited this pride to his students. It is possible that personal attitudes of this kind may have some influence on enlistment in the Navy, in the same sense that a mathematics teacher who is devoted to his subject may stimulate some of his students to become mathematicians. This phenomenon, if it occurs, does not, in ORI's opinion, equate with "recruiting," as that word is usually construed.

REVIEW OF NAVY ENLISTMENT DATA

The Recruiting Data Systems of the Navy Recruiting Command provided ORI with a magnetic tape containing Bureau of Naval Personnel on each first-term Navy enlistee who entered the Navy during the period 1 July 1972, through 31 December 1972. The data provided were recorded from the enlistment contracts or from codes entered on the enlistment contracts. The data on each enlistment contract provided, as requested by ORI, were the following:

- Years of education
- Term of enlistment
- Number of enlistments
- Sex of enlistee
- Race of enlistee
- Ethnic Group of enlistee
- Religion of enlistee
- Type of enlistment
- Special program code
- Test score group

- Zip code of residence of enlistee
- JROTC code.

Review of the data provided to ORI showed that a number of unreadable characters were found in the data field reflecting the JROTC code. The Recruiting Data System investigated these unreadable codes and advised ORI that the data for the month of July, as regards JROTC, were not usable and that these data accounted for the unreadable codes. From that point on, ORI utilized data from only 48,034 of the 60,655 records that had originally been provided. ORI could find no means of determining any JROTC background of the 12,622 enlistees whose records were not utilized, nor was there any way for ORI to completely purge all July data from the file. Thus, it is known that all data reflecting August 1972 through December 1972 enlistments are included, and that some data from July 1972 enlistments are also included.

According to the Recruiting Data System, the period August through December includes months in which a very large number of persons enlist (August and September,) and months when a much smaller number enlist (November and December). The months with the lowest number of enlistments are not included. ORI staff judged that no further data were required since an analysis of any seasonal variation in NJROTC enlistments was not intended or anticipated. It should be noted, however, that the Recruiting Data System would have provided as many as 10 months of data if ORI had requested them.

REVIEW OF NAVY INSTALLATION DATA

One of the questions of interest in the study effort was whether or not NJROTC—related enlistments in the Navy were also related to the proximity to the NJROTC unit of major navy installations. This question focused on the possibility that young people who lived in a community in which Navy influence was great could be more inclined to enlist in the Navy than those who lived elsewhere.

ORI determined that it was not possible to designate the areas of the country where Navy influence is very great, except in a small number of obvious cases, such as Norfolk, San Diego, Pensacola, Corpus Christi, Memphis, Orlando and, perhaps a few others. Thus, ORI resorted to simply defining a locality with major Navy influence as one in which more than 1,000 uniformed Navy personnel are employed. Examination of the Bureau of Naval Personnel, Manpower and Personnel Management Information System (MAPMIS) Report of On-Board Count, dated March 1973, showed that there were 56 such areas in 25 states and the District of Columbia. These are listed in Appendix C.

REVIEW OF NATIONAL SCHOOL DATA

In order to attempt to compare the enlistment rate of young people with NJROTC-related experience with the enlistment rate of young people in general in a given area, ORI attempted to calculate the total number of secondary school students in a given ZIP Code area, as well as the total number of students who attended NJROTC schools in that area. The only available printed source of the data required for such computations was a series of directories produced by the National Center for Educational Statistics (NCES)1/

1/ U.S. Department of Health Education and Welfare, National Center for Educational Statistics, Directory, Public Elementary and Secondary Day Schools, 1968-1969, by [illegible]ne B. Gertler, Washington, D. C., U.S. Government Printing Office, 1970.

Volume I: North Atlantic Region
Volume II: Great Lakes and Plains Region
Volume III: Southeast Region
Volume IV: West and Southwest Region and Outlying Areas
Volume V: Nonpublic Elementary and Secondary Day Schools.

The data included in these directories reflect enrollments in schools during the school year 1968-1969. Thus, they do not accurately reflect the enrollments of schools during more recent periods. Diane B. Gertler, the author of the directories, confirmed to ORI that the directories are outdated, that enrollments nationwide were generally lower in 1972 than in 1969, but that variations within that generalization could not be estimated with any reliability except by large-scale analyses of certain NCES magnetic data tapes. ORI determined that such an analysis was not justified within the resource constraints of the present study.

ORI decided to accept the data included in the directories, regardless of their known, but undefined, inadequacies. Accordingly, ORI used the data to calculate the total number of secondary students in 91 3-digit ZIP Code areas, as well as the total number, in the same areas, who attended schools with NJROTC programs. This calculation led to discovery of additional limitations in the data.

- Schools which taught students in grades 10, 11 and 12 (the grades of the NJROTC program) were listed in several different ways: 7-12, 7-PG (Post-Graduate) 8-12, 8-PG, 9-12, 9-PG, 10-12, 10-PG. Such variations occurred both between and within ZIP Code areas, and no way was discovered to standardize the estimates to include the same number of grades. Thus, ORI's calculation of the total number of high school students in a ZIP Code area or in NJROTC schools is really a calculation of students in all schools that had grades 10, 11 and 12, even though some schools had as many as four grades more than others.
- Some schools were specifically identified as being intended for the teaching of persons who are not

eligible for Navy service, such as the deaf, the blind, the crippled or the retarded. The possibility exists, however, that some schools intended for these persons were not designated as such by their title. ORI excluded only those that were specifically so designated.

- Limitations in the school data also resulted in the elimination of 10 ZIP Code areas from the original list of 91. This was done because schools identified as having NJROTC programs in those areas (a) did not exist in 1968-1969, or (b) existed in 1968-1969 but were junior high schools at that time.
- Two additional ZIP Code areas were eliminated because the only NJROTC schools in those areas were private schools specifically designed to encourage students to career plans other than Navy entry immediately after high school.

III. PRELIMINARY ASSESSMENT OF NJROTC INFLUENCE ON NAVY ACCESSIONS

ORI believed that a positive relationship of NJROTC on Navy accessions could be shown only if, in a given time period and in a given area, persons with NJROTC experience or NJROTC-related experience comprised a percentage of total Navy enlistments from that area that was larger than the percentage of the NJROTC-related students in that area.

In this study, NJROTC experience is defined as self-reported completion of one or more years of the NJROTC course of instruction as indicated on Enlistment Contract (Form DD-4). NJROTC-related experience is defined as self-reported attendance at a school with an NJROTC unit as indicated on the Form DD-4. Thus, persons with NJROTC-related experience include persons with NJROTC experience.

NATIONAL PERSPECTIVE

As described above, 1968-1969 school enrollment data were used as an estimate of the number of students with NJROTC-related experience, as follows:

- Number of Secondary Students Nationwide (1968-1969). 13,722,000[1/]
- Number of Students (1968-1969) in schools that had NJROTC units. 178,074[2/]
- Students in schools with NJROTC units as a percentage of all students. 1.29%

On this basis, if the area chosen for analysis was the entire nation, a positive impact of NJROTC on Navy accessions could be shown if the enlistment of persons with NJROTC-related experience comprised greater than about 1.3% of Navy enlistments in a given time period.

During the period July 1972 through December 1972, the enlistment of persons with NJROTC-related experience comprised 1.02% of 48,034 Navy enlistments. Based on that overall estimate, therefore, it must be concluded that NJROTC, at the national level, had no perceptible positive relationship with Navy accessions.

ESTIMATE OF IMPACT FROM PERSPECTIVE OF ALL AREAS IN WHICH NJROTC UNITS EXIST

The only indication of the area of residence of Navy enlistees available on the magnetic tape which was used to identify NJROTC-related experience of enlistees is the ZIP Code of the home of residence. NJROTC units (1971-1972) existed in 91 of the 948 3-digit ZIP Code areas of the United States. School enrollment data (1968-1969) were used as an indicator of the number of students with NJROTC-related experience in each of 79 of the 91 ZIP Code areas in which NJROTC units were present in 1971-1972. As was described in Section II, the remaining 12 ZIP areas had to be excluded because no data were available on which to base a reasonable estimate.

1/ U.S. Department of Health, Education and Welfare, National Center for Educational Statistics, Projections of Educational Statistics, 1981-1982, 1972 edition, Washington, D.C., U.S. Government Printing Office, 1972. The Directory, Public Elementary and Secondary Day Schools, 1968-1969, did not provide this aggregate estimate.

2/ Of the 126 schools, enrollment data were available on only 120 schools.

NJROTC presence is as follows:

- Number of Secondary Students in 79 ZIP areas having NJROTC units (1968-1969). 1,632,038
- Number of Students (1968-1969) in schools that had NJROTC units (1971-1972) in these 79 areas. 169,228
- Students in schools with NJROTC units as a percentage of all students in 79 ZIP areas. 10.37%

On this basis, if the area chosen for analysis consisted of only these 79 ZIP areas that had NJROTC units, a positive impact of NJROTC on Navy accessions could be shown if the enlistment of persons with NJROTC-related experience comprised greater than about 10.4% of Navy enlistments in a given time period.

During the period August 1972 through December 1972, the enlistment of persons with NJROTC-related experience comprised 353 out of 6,265 total enlistees from the 79 areas or 5.6% of the total. Based on this estimate, it must be concluded that NJROTC had no perceptible positive relationship with enlistments in these areas.

These 353 NJROTC-related enlistees comprised about 71% of all NJROTC-related enlistees. In addition, 51 NJROTC-related enlistees indicated homes of residence in ZIP areas that were adjacent to the 79 ZIP areas that had NJROTC schools. It is possible, because of the imperfect conformity of ZIP Code areas with school district and other governmental boundaries, that students could commute across ZIP Code boundaries to ZIP areas with NJROTC schools in order to attend these schools. If it is assumed that certain NJROTC school communities overlap other ZIP areas, it may be useful to include the 51 students from adjacent areas in the computation of NJROTC impact. This estimate, then, would include 353 + 51 or 404 of the 6,265 total enlistees, or about 6.5% of

the total. Thus, even if enlistees from adjacent areas are included, no positive relationship (relative to the 10.4% expected) can be discerned.

ESTIMATE OF IMPACT IN EACH ZIP CODE AREA IN WHICH NJROTC UNITS EXIST

For each of the 79 areas, (1) the total number of secondary school students, (2) the total number of students with NJROTC-related experience, and (3) NJROTC-related students as a percentage of total students were computed. These computations are presented in Appendix E. A summary of these computations shows that in ten ZIP areas, the percentages of Navy enlistees who have NJROTC-related experience exceeded the percentage of NJROTC-related students in the ZIP areas. In one ZIP area, these percentages were virtually equal. In 68 areas, the percentage of persons who enlisted and reported having NJROTC-related experience was lower than the overall percentage of NJROTC-related students in those areas; and in 22 of these, the NJROTC-related percentage of enlistees was 0. If NJROTC-related enlistees from adjacent ZIP areas are added, NJROTC-related enlistments exceed the NJROTC-related student population percentage in 13 areas, are virtually equal in none and are lower in 66.

On this basis, it must be concluded that NJROTC appears to have a positive relationship with enlistment in only a small number of areas. These areas, and the enlistment percentages computed, are shown in Table 3.1.

TABLE 3.1

ZIP CODE AREAS WITH GREATER THAN EXPECTED PERCENTAGE OF ENLISTEES FROM NJROTC SCHOOLS

Zip Code	Location	Percent Expected	Percent Actual	Percent Difference
287	Canton, NC	6.0	6.1	+ 0.1
290	Cayce (Columbia), SC	6.2	6.4	+ 0.2
701	New Orleans, LA	1.8	2.4	+ 0.6
841	Kearns (Salt Lake City), UT	11.7	13.4	+ 1.7
040	Old Orchard (Portland), ME	2.6	4.5	+ 1.9
843	Brigham City (Ogden), UT	35.6	40.0	+ 4.4
366	Mobile, AL	14.0	19.7	+ 5.7
327	Titusville (Orlando), FL	11.5	20.2	+ 8.7
611	Rockford, IL	4.8	14.6	+ 9.8
875	Santa Fe, NM	18.1	30.0	+11.9
	Additional ZIP Code areas with greater than expected percentage of enlistees from NJROTC schools if NJROTC-related enlistments from adjacent ZIP Code areas are added.[1]			
871	Albuquerque, NM	27.0	27.9	+ .9
600	North Chicago/Wheeling, IL	4.9	9.3	+ 4.4
298	Aiken, SC	13.8	20.6	+ 6.8

[1] Adjacent ZIP Codes were identified from the Rand McNally ZIP Code Map of the United States.

Other information obtained from NJROTC files shows that 19 NJROTC schools were present in these 13 areas. These 19 schools can also be described as follows:

Proximity to Navy Installations

	Number of Schools
Within 25 miles	3
Outside 25 miles	16

(Of the total group of NJROTC schools, 29% are located within 25 miles of a Navy installation that employs more than 1,000 uniformed Navy personnel.)

Racial Composition

	Number of Schools
Predominantly Black	2
Significantly Black	4
Predominantly Mexican-American American-Indian	1
Predominantly White	12

(As previously stated, of all NJROTC schools, 17% were predominantly or significantly black, 2% were predominantly or significantly Mexican-American, and 81% were predominantly White.)

Size of Male Enrollment

	Number of Schools
300 - 500 students	3
501 - 1,000 students	8
1,001 - 1,500 students	5
1,501 - 2,000 students	0
2,001 + students	1

(The average male enrollment for all schools was 728 students.)

Age of NJROTC Program

	Number of Schools
Less than one year	3
One year	1
Two years	3
Three years	4
Four years	5
Five years	3

Regional Location

	Number of Schools
Northeast	1
South	9
Midwest	3
West	6

(Of the total number of NJROTC units operating in 1971-1972, about 56% were in the South, about 18% were in the West, 15% were in the Midwest and 10% were in the Northeast.)

It should also be noted that when the Spearman rank-difference correlation test was applied to state populations and Navy enlistments, rho was equal to .96. Such a high correlation between state population and enlistment indicates that no region of the country was exceptionally productive of first-term recruits during the period studied.

ESTIMATE OF IMPACT IN EACH SCHOOL IN WHICH NJROTC EXISTS

From data collected from NJROTC program files, ORI determined that the average male enrollment (grades 10-12) in schools that had NJROTC units was 728. This figure, however, is not completely reliable, since it is based on data which varied in age from two to six years. As was described in Section II, male enrollment figures for 1971-1972 obtained from the questionnaire survey of units showed that, on the average, 1971-1972 enrollments were 13.4% lower

than for the entire period 1966-1972. Thus, the average male enrollment for all NJROTC schools can be estimated to range from 728 down to 630 students.

Data obtained on NJROTC units themselves are much more reliable because they were obtained from inspection sheets for the 1971-1972 school year only. These data showed that the average number of NJROTC participants in 1971-1972 was 83 per school. Using that figure, it is possible to estimate the average proportion of NJROTC participation in a school to be between 10.6% (83 ÷ 728) and 13.2% (83 ÷ 630) of the overall male population. It is then possible to say that a positive relationship of NJROTC participation with Navy enlistment would be indicated if persons who participated in NJROTC comprised greater than 10.6% or 13.2% of total NJROTC-related enlistments.

Review of Navy enlistment data showed that 492 enlistees reported on the enlistment contract that they had attended a high school with an NJROTC program. Of these, 179 reported participating in NJROTC for one or more years. These participants comprise 36.4% of total NJROTC-related enlistments, as compared with the expected 10.6% or 13.2%. It appears, then, that NJROTC participants are more likely to enlist than their fellow students. The numbers involved are so small, however, and the apparent overall impact of NJROTC on enlistments is so insignificant, that it can not be concluded that the NJROTC course of instruction was the primary reason for this increased enlistment behavior. It is noted, for example, that the difference between 10% of 492 (total NJROTC-related enlistees) and 36% of 492 is only 127, or about one person per NJROTC school (126 schools). In ORI's opinion, this is not sufficient grounds for attributing a complex decision like Navy enlistment to the NJROTC program itself. It is equally likely that an additional one person per school intended to enlist even before joining NJROTC. ORI's site visits, described in Section II, identified that such behavior does occur.

COMPARISON OF NJROTC INFLUENCE ON NAVY ACCESSIONS WITH INFLUENCE OF OTHER JROTC PROGRAMS

The possibility exists that the Junior Reserve Officer Training programs of other services may have some impact on Navy enlistments. Enlistment data showed that 2,889 Navy enlistees during the period August 1972 through December 1972 reported that they had attended schools with JROTC programs of either the Army, the Air Force or the Marine Corps. When compared with the 492 who were NJROTC-related, this figure seemed relatively large.

From the Navy Recruiting Command, ORI obtained an estimate that all four services had a total of 952 JROTC units in the school year 1971-1972. The 126 NJROTC schools, expressed as a percentage of that total number represents 13.24% of the total, which means that the other services had 86.76%.

The 492 NJROTC-related enlistees, similarly, comprise about 14.5% of all JROTC-related Navy enlistments, while JROTC-related enlistees from programs of other branches comprise about 85.5%. Thus, students who were exposed to NJROTC were slightly, but not significantly, more likely to enlist in the Navy than were those that were exposed to JROTC programs of other services, assuming that the JROTC's of the other services are in schools of about the same size as NJROTC schools.

Apropos of that assumption, ORI found that the number of NJROTC schools does not present an accurate reflection of the percentage of NJROTC-related students in the national school population. NJROTC units were found in 126, or about .4%, of the 29,000 public and non-public secondary schools nationwide. As was stated previously, these 126 schools had enrollments totalling about 1.3% of all students in the nation.

In the 91 ZIP Code areas where NJROTC schools were located, the average enrollment of all 1,985 secondary schools was 939 students. The average enrollment of the 120 (of 126) NJROTC schools on which data were available was 1,484. This apparent tendency of NJROTC schools to be found in larger than average schools may be the result of the requirement that the

school must have a high probability of maintaining 100 students in the NJROTC unit. Since that requirement also applies to the JROTC's of the other services, the assumption that NJROTC schools are similar in size to other JROTC schools is probably better than the apparently false assumption that JROTC schools are similar in size to non-JROTC schools.

IV. IN-DEPTH EVALUATION PLAN[1/]

As was described in Section I, the preliminary evaluation undertaken by ORI was devoted only to assessing NJROTC influence on Navy accessions. This was, admittedly, contrary to usual evaluation practice, because an increase in Navy accessions is not included within the objectives of NJROTC as stated in the founding legislation and NJROTC program documents. Further, recruiting was not stated as an objective in the limited number of ORI interviews with NJROTC personnel and Naval Science Instructors during the study. Thus, the preliminary evaluation intentionally left major gaps to be filled in evaluating the success of the NJROTC in achieving its stated objectives. This section of the report will describe a plan for filling these gaps, and will discuss alternatives for implementing this evaluation plan.

1/ ORI acknowledges that some of the ideas included in this plan were present in or anticipated by a Naval Personnel Research and Development Laboratory Research Plan "Influence of NJROTC Program Participation on Navy Recruiting Effort Effectiveness," dated January 1973. ORI takes complete responsibility, however, for any errors or weaknesses which may inhere in the present plan.

SPECIFICATION OF DEPENDENT VARIABLES

Based upon the objectives of NJROTC, the variables which the program is intended to affect may be stated as follows:

- Knowledge of naval affairs and naval skills within the context of overall requirements for national security;
- Behaviors reflecting orderliness, precision and respect for constituted authority, or attitudes which might correlate with such patterns of behavior;
- Behaviors reflecting personal honor, self-reliance, individual discipline and leadership, or attitudes reflecting such behaviors;
- Behaviors or attitudes which demonstrate patriotism.

OBSERVABILITY OF DEPENDENT VARIABLES

Knowledge of naval affairs and naval skills and the requirements of the national security could be measured by a standard test. Similarly, attitudes toward military service and toward efforts and expenditures to insure national security could also be measured, relative to pre-defined standards, using a test or questionnaire.

Behaviors reflecting orderliness, precision and respect for constituted authority could be inferred from a number of surrogates. Performance in school, in employment including military employment, in civic affairs, and with respect to evidence or lack of evidence of criminal convictions are examples of such surrogates. A questionnaire that would measure orderliness, precision and respect for constituted authority might also be developed, but this would require extensive design and validation efforts.

Similarly, certain behaviors may be interpreted to demonstrate personal honor, self-reliance, individual discipline and leadership. School, employment, civic and criminal (or non-criminal) behaviors, mentioned above might indicate these qualities or their lack. Furthermore, performance in specifically identifiable positions of leadership, even in family relationships, might be observable. ORI does not forsee a means of measuring self-discipline or leadership with a standard instrument.

ORI also perceives patriotism to be a characteristic that is so subjective and so relative to circumstances that any definition of it, or scale designed to measure it, would by tainted by arbitrariness and caprice. This is not to say that patriotism is an unreal concept, but only to confess that ORI cannot suggest ways of discerning with confidence the effects of patriotism on behavior. Utilization of any standard instrument in an attempt to observe patriotic attitudes would appear to be equally difficult.

In summary, it appears that the dependent variables of interest can be observed through a standard written test of naval knowledge; and behaviors reflecting orderliness, precision, respect for constituted authority, personal honor, self-reliance, individual discipline and leadership could be inferred from substantive questionnaire responses, or in the case of any persons who were employed by the Navy, from examination of their performance and advancement in the Navy.

In addition, in order to study any effect of NJROTC on Navy enlistments, attitudes toward, or intentions of enlisting in the Navy should also be included on the questionnaire.

COMPARISON GROUPS

In order to test the effects of NJROTC, it appears necessary to test the knowledge of and observe the behavior of three groups of people:

- NJROTC unit participants
- Persons who attend schools with NJROTC units, but who do not participate in the NJROTC unit
- Persons who attend only schools that do not have NJROTC units.

Use of these groups then allows a test of the hypothesis that NJROTC participants will advance most in terms of naval knowledge, in terms of the behavioral traits intended and, perhaps, in propensity to serve in the Navy in either an officer or enlisted capacity. Students who attend an NJROTC school, but do not participate in the unit, could be hypothesized to demonstrate smaller advances on these dimensions than do NJROTC participants, but greater advances than students who attend schools that have no NJROTC units.

SCHEDULE OF OBSERVATIONS

Baseline Period

In order to establish a means for discerning changes in the dependent variables within and among the three comparison groups, an in-depth evaluation should gather baseline data (knowledge of naval affairs, attitudes to the Navy) on a sample of students before they have an opportunity to experience NJROTC, i.e., at the beginning of the tenth grade. This would permit observation of students who intended to enlist in the Navy before they had considerable experience in NJROTC. (Other base line data should also be collected at this time, and will be described later under Classification Variables.)

Identical questionnaires would be administered to students who enter NJROTC in the eleventh and twelfth grades, to establish a base line of their knowledge of the Navy, attitudes toward the Navy and orientation to enlistment, if any. Subsequent observation of the students who will complete two years of NJROTC or less will establish a basis for comparison with those who complete the entire three-year program. This comparison may suggest whether the NJROTC curriculum could be shortened without reducing its impact on the dependent variables of interest.

High School Period

Before the end of the senior year, the same data elements observed during the base line period should be updated in both NJROTC schools and non-NJROTC schools. At this time, in addition, data concerning overall school performance, participation in extracurricular activities and in civic affairs can be collected. It is also probable that some members of the sample will be identified at this time as having left school for academic, disciplinary, legal or personal reasons. Other members of the sample will probably have moved to other schools in the same community or to a different community.

Analyses of these data collected at the end of high school will show, for each of the three comparison groups, their behaviors relative to the dependent variables and relative to each other. Conclusions concerning the relative impact of NJROTC can be based on these comparisons.

The second data collection effort should also determine the post high school plans of the members of the sample, and as good an indication as possible of their post high school address. This will permit follow-up on the post high school activities of the students.

Post High School Period

Questionnaires can be mailed one year after graduation to members of the sample to determine their employment or school status. Based upon responses to this questionnaire, analyses will show, for each of the three comparison groups, their relative progress in work or school. Responses could also be used to assess the armed forces enlistment behavior of the three groups. Respondees who indicate employment in the Navy could be mailed an additional questionnaire to obtain more information on the pattern of their service.

The progress of members of the three comparison groups in the Navy may permit additional inferences about the impact of NJROTC.

Respondees (to the post high school questionnaire) who indicate attendance at a four-year college or university could be sent an additional questionnaire to identify their participation, if any, in a service academy, NROTC, other ROTC, or other military officer preparation programs. Those who respond and who indicate that they are not in an officer preparation program can be followed-up during their intended year of graduation to determine whether they will graduate on schedule and to ascertain their future plans.

Those that respond and indicate participation in any officer preparation program could be followed-up during their senior year and upon their entry into active or reserve duty. This would provide data on the officer service behavior of members of each of the three comparison groups. Further analysis of the performance of naval officers from the three groups would also be permitted.

CLASSIFICATION VARIABLES

ORI reviewed a number of studies of employment, job-training and job-seeking behavior in order to identify independent variables, other than NJROTC participation, which could affect the dependent variables of interest. This review produced the list presented in Appendix F. This list is so extensive that no feasible methodology is readily available that will isolate the impact of NJROTC from all of these other variables. As a feasible alternative, the members of the three comparison groups can be classified according to certain of these variables, other than NJROTC, which have been identified as having a relationship to the dependent variables. These "classification" variables are listed below:

- Sex
- Race
- Physical or Mental handicaps

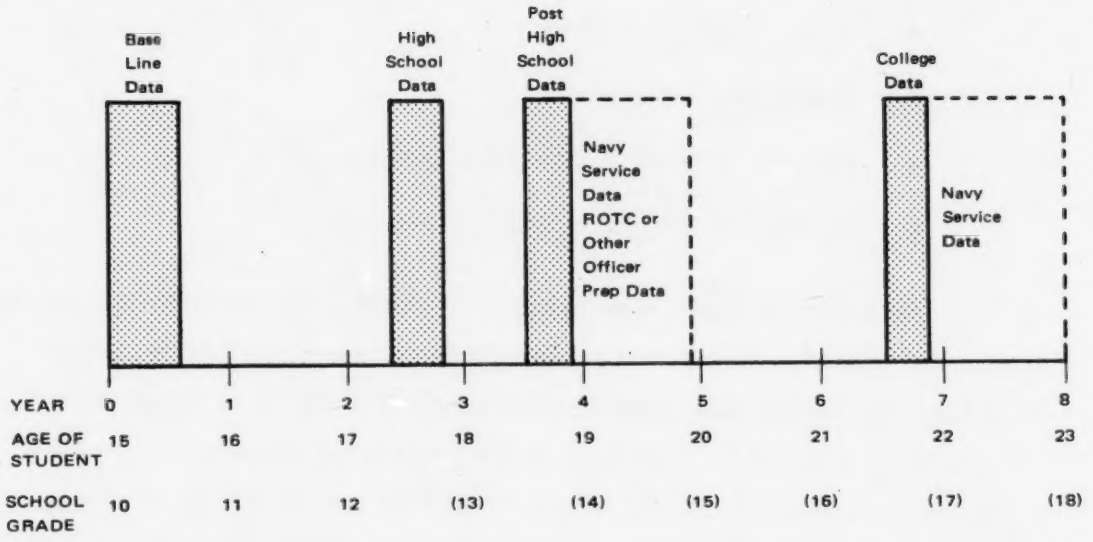
- Socioeconomic status
- School grade completed
- School grade point average
- Place of residence (urban, suburban, rural)
- Parental or sibling military experience.

Selection of these nine variables, when compared with the list which comprises Appendix F, may over-simplify the evaluation described here. Nevertheless, these nine variables are those that are most often identified, in the literature studied, to be related to the dependent variables of interest. Thus, if the three comparison groups could be further classified by these nine variables, analyses of variations in the dependent variables should provide sufficient basis for inferences concerning the impact of NJROTC.

ALTERNATIVE APPROACHES TO DATA COLLECTION

The longitudinal data collection plan described above under "Schedule of Observations" would give the greatest possible assurance of complete, valid, reliable, and interpretable evaluation results. Predictably, this plan would also be the most costly and would require data collection over approximately an eight year period. The remainder of this section describes evaluation alternatives which require more limited expenditures and which yield results in a shorter period.

As described to this point, the data collection plan has the following time dimension:


Base Line Data
High School Data
Post High School Data
College Data
Navy Service Data ROTC or Other Officer Prep Data
Navy Service Data
YEAR 0 1 2 3 4 5 6 7 8
AGE OF STUDENT 15 16 17 18 19 20 21 22 23
SCHOOL GRADE 10 11 12 (13) (14) (15) (16) (17) (18)

Reducing the Scope of the Data Collection

One possible option for reducing the scope of the evaluation would be to exclude the final data collection stage, i.e., the period from about $6\frac{1}{2}$ to 8 years from the start date. This reduction would make it impossible to achieve any measurement of the college performance and subsequent Navy service of members of the three comparison groups who attended four year colleges. This would allow completion of the study in about $5\frac{1}{2}$ years from the start date.

A further reduction could consist of eliminating the post high school data collection effort (from about $3\frac{1}{2}$ years to about 5 years after start). This would make it impossible to observe the employement behavior (including Navy employment) of the comparison groups as well as their higher education behaviors. This reduction in scope would permit the evaluation to be completed in about $3\frac{1}{2}$ years.

Reduction of the elapsed time of the study to a period shorter than $3\frac{1}{2}$ years is not possible. The high school data collection effort (from about $2\frac{1}{2}$ to about 3 years after start) is required if any measurement of NJROTC impact on knowledge or behavior is to be made. Reduction of scope to this period would mean that the only indicators of traits like precision, self-discipline, etc., would be behaviors during the high school years. These would probably be limited, in most cases, to activities highly related to school and to the peer group, although some part-time employment and civic activities might be observed.

Simulating a Longitudinal Study

Another means of reducing the cost and elapsed time of an NJROTC evaluation would consist of simulating a longitudinal study. This would be accomplished by choosing four age group samples of each of the comparison groups:

- A group of 10th graders (school year 1973-1974, for example)
- A group of 12th graders (1973-1974)
- A group of high school graduates who completed school the previous year (1972-1973, for example), with oversampling of Navy personnel
- A group of college students in their senior year (1973-1974) with oversampling among those in the various officer preparation programs.

The data collections and analyses described above could then be implemented with these groups in order to produce results similar to those of a longitudinal study. A major weakness in this alternative is recognized.

No real indication of progress can be observed because the behaviors of different people, as opposed to changes of behavior of the same people, are compared. Only inferences of change can be drawn, based upon the assumption that each older age group probably was once similar to each younger group in terms of Navy knowledge, behavior, etc. The validity of this assumption can be strengthened by matching the members of each age group according to the classification variables described above. Nevertheless, the validity of the comparisons among the three comparison groups is probably still greatly weakened by the differences in age. For example, it may be true that the effect of the Vietnam war on the knowledge of the Navy among persons who are now 22 years old differs from the effect of the Vietnam war on the knowledge of the Navy among persons who are now 15 years old. Persons who are now 22 may have known much more about the Navy when they were 15 than the current group of 15 year-olds. By setting the knowledge of current 15 year groups as the base line, and comparing it with the knowledge of current 22 year-olds, considerable errors may enter the analyses of comparisons among the three basic comparison groups.

Studying Only Navy Servicepersons

If the study were greatly reduced in scope, it would be possible to evaluate only the behavior of persons in the Navy who had NJROTC experience and NJROTC-related persons. In this case, samples of the three comparison groups could be drawn from enlistees and from officers entering active duty. Upon entry, these personnel could be administered a retrospective questionnaire to attempt to develop a profile of the "classification variables" mentioned above subsequently, the performance of these personnel could be entered into the evaluation. This would show the relative performance in the Navy of the three comparison groups. On this basis, it would be possible to infer the effect of NJROTC on Navy knowledge, attitudes toward the Navy, self-reliance, self-discipline, etc.

Once again, however, this limited design would provide an evaluation of NJROTC in terms of its effects on Navy service only, and Navy service is entirely outside the objectives of NJROTC as they are stated in the legislation and program documents. Thus, this design would, from its inception, fail to take account of the effect of NJROTC on persons who do not enter the Navy. Although an evaluation based on this design could be useful to the Navy or the Department of Defense, it would not represent an evaluation of NJROTC in terms of the objectives established for the program by the Congress.

APPENDIX A

MAIL-OUT QUESTIONNAIRE

SECONDARY SCHOOL DATA

General Information

1. Name and Address of School:

2. Type of Community (Rural, Industrial, Urban, etc.):

3. Male Enrollment - Grades 10-12:

4. Number of classroom teachers:

5. Pupil - Teacher Ratio:

6. Percentage of recent graduates entering college:

7. Percentage of recent graduates furthering their education:

Curriculum - Number of Units Offered and Course Names in Math and Science:

1. English:

2. Social Studies:

3. Science:

4. Mathematics:

SECONDARY SCHOOL DATA, CONT.

5. Languages:

6. Business education:

7. Shop facilities: (Expand if a technical school)

8. Percent of faculty which is male:

9. Number that are former servicemen:

NJROTC PROGRAM DATA SHEET

1. How many members of the 1972 graduating class were members of NJROTC during their senior year?

2. How many members of the 1972 graduating class were certified as having successfully completed the three year NJROTC program?

3. How many members of the 1972 graduating class who were NJROTC graduates entered the United States Naval Academy?

4. How many members of the 1972 graduating class who were NJROTC graduates entered the United States Military Academy, the United States Coast Guard Academy or the United States Air Force Academy?

5. What was the total enrollment (Grades 10-12) of the NJROTC program during the school year 1971—1972?

6. What was the composition of the total NJROTC program, 1971—1972, by ethnic group?

Black _____

White _____

Other _____

APPENDIX B

FILE DATA TABULATIONS

REGIONAL LOCATION OF NJROTC UNITS (1971-1972)

	Number	Percent
Northeast and Middle Atlantic States	13	10.3
Southern States	71	56.3
Middle Western States	19	15.1
Mountain and Western States	23	18.3
	126	100.0

The following states had no NJROTC programs: Vermont, Connecticut, Deleware, Oregon, Nevada, Hawaii, North Dakota, South Dakota, Nebraska, Alaska, Minnesota, West Virginia, and the District of Columbia.

LOCATION OF NJROTC UNITS RELATIVE TO MAJOR NAVY INSTALLATIONS

	Number	Percent
Units 25 miles or less distant	37	29.4
Units more than 25 miles distant	89	70.6
	126	100.0

Measurement of distance was accomplished using The International Atlas, published by Rand McNally and Company, Chicago, 1969, and the scales of statute miles presented on the appropriate maps in that book. Because of the innacuracy in the measurement process, it was decided to resolve doubtful distances always in favor of the units being within 25 miles. Thus, the number of units stated above as being 25 miles or less distant is a maximum estimate.

The distance of 25 miles was chosen based on information provided by the U.S. Department of Transportation, Federal Highway Administration. That agency is conducting the Nationwide Personal Transportation Study. Volume 8 of that study, not yet published, will show that more than 97% of drivers nationwide have a one-way commuting distance to work of 25 miles or less. On this basis ORI concluded that students who attend schools outside that distance from a Navy installation would be unlikely to live in a community that had a high population of Navy employees.

LOCATION OF NJROTC UNITS BY URBAN, RURAL, SUBURBAN AREA

	Number	Percent
Urban	58	61.1
Rural	19	20.0
Suburban	16	16.8
No information	2	2.1
	95	100.0

Data came from the 95 schools for which files on schools and NJROTC units were available.

SCHOOLS WITH NJROTC UNITS BY TYPE

	Number	Percent
College Preparatory Only	7	7.4
Comprehensive	82	86.3

	Number	Percent
Vocational/Technical	0	0.0
No information	6	6.3
	95	100.0

SCHOOLS WITH NJROTC UNITS BY ETHNICITY

	Number	Percent
Predominantly (greater than 50%) Black	8	8.4
Significantly (30% to 50%) Black	8	8.4
Predominantly (greater than 50% Mexican American or American Indian	2	2.1
Predominantly (greater than 70%) white	77	81.1
	95	100.0

NJROTC UNITS BY NUMBER OF YEARS IN OPERATION (as of June 1972)

Years in Operation	Number	Percent
1 year	18	18.9
2 years	14	14.7
3 years	20	21.1
4 years	21	22.1
5 years +	21	22.1
No information	1	1.1
	95	100.0

NJROTC UNITS BY NUMBER OF GRADUATES, JUNE 1972

Number of Graduates	Number of Units
0-10	18
11-20	42
21-30	17
31-40	1
41-50	8
51+	3
No information	6
	95

Graduates in this table include persons who were certified to have completed all three years of the NJROTC program and others who were in the NJROTC unit at the time of graduation, but had not completed three years.

The mean number of graduates per school was 18.9.

From these 95 schools, 39 NJROTC graduates, certified or uncertified, were appointed to one of the service academies. Of these, 24 were appointed to the U.S. Naval Academy.

NJROTC STUDENTS AS A PERCENTAGE OF ALL MALE STUDENTS BY AGE OF NJROTC UNIT

Age of Unit	Percentage
1 year	13.2
2 years	8.6
3 years	8.3
4 years	8.3
5 years	9.3

Average male enrollment (95 schools) 728.4

Average NJROTC enrollment (95 schools) 82.6.

This table seems to indicate that NJROTC programs do not necessarily grow, as a percentage of the total male enrollment. It seems likely that the relatively large percentage (13.2%) in the first year may be the result of heightened interest in a new program or the result of a newly participating school trying to achieve the 100 student NJROTC enrollment required by the NJROTC program.

APPENDIX C

SITE VISIT INTERVIEW QUESTIONNAIRES

PART ONE

SCHOOL AND PROGRAM INFORMATION

Name of School _____ Public ___

Private ___

Location _____, _____ Urban ___

(City) (State) Suburban ___

Rural ___

Total Enrollment _____

* *

I. CHARACTERISTICS OF STUDENT BODY (OVERALL)

A. Sex:

Male _____%

Female _____%

B. Ethnicity:

White _____%

Black _____%

Other _____%

C. Disadvantaged:

_____%

D. Is the student body representative of the make-up of the surrounding neighborhood (i.e., in the school service area)?

Socioeconomic:

Yes ___ No ___

Racial:

Yes ___ No ___

E. Percent of 1972 graduates who entered college. _____%

F. Percent of 1972 graduates who entered other post-secondary schools. _____%

II. CHARACTERISTICS OF THE SCHOOL

A. Curriculum

1. Number of courses by type:

   Vocational _____

   College Prep _____

   General _____

2. Is an Occupational Information Course offered?

   Yes ___ No ___

3. What achievement tests are presently in use by the schools and what is the mean score of all students on these tests?

Name of Test	Mean Scores
_____	_____
_____	_____
_____	_____
_____	_____

B. Faculty

1. Number of faculty members _____

2. Males _____% Females _____%

3. Number of occupational guidance counselors _____

III. NAVAL JUNIOR ROTC PROGRAM.

A. How long has the program existed in the school? _____ Years.

B. Number of students presently enrolled in the program, by grade level:

   Sophmores _____ Juniors _____ Seniors _____

C. Sex of participants in NJROTC Program (overall)?

   Males _____%

   Females _____%

D. Ethnicity (overall):

White _____%

Black _____%

Other _____%

E. Disadvantaged:

_____%

F. What percent of the 1972 NJROTC graduates entered:

College _____ No ROTC _____

NROTC _____

Other Service Branch ROTC _____

Navy Active Duty _____

Naval Reserve _____

Other Service Branches Active Duty only _____

G. How does the grade point average of most students in the NJROTC Program compare to the grade point average of the student body overall?

NJROTC higher _____

NJROTC lower _____

NJROTC about the same _____

H. What is the overall average of students in NJROTC on the achievement tests given by the school?

Name of Test	NJROTC Mean Score
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

I. What are the basic requirements for graduation from the NJROTC Program? _____

_____

_____

_____

_____

_____
Name of Naval Science Instructor

_____
Rank

_____
Date

PART TWO

NSI INTERVIEW

(Please answer the following questions based on your experience and knowledge as a Naval Science Instructor in this school).

* *

I. ACCEPTANCE OF THE NJROTC PROGRAM

A. What is the general attitude of school administrators and faculty towards the program? _____

_____

_____

B. How does the administration view NJROTC courses?

As vocational ___

As college prep ___

Other (Explain) _____

C1. Generally, how is the program accepted by the neighborhood in which the school is located? _____

_____

_____

C2. By the parents of students attending this school? _____

_____

_____

D1. What is the general feeling of the students toward the program?

_____

_____

_____

D2. Of non-participating students? _____

_____

_____

II. METHODS OF AND REASONS FOR PROGRAM ENTRY

A. How do students initially find out about the program?

1. Navy family ___
2. Other siblings in the program ___
3. Peers ___
4. Counselors ___
5. Media/advertisement ___
6. Navy installation near school ___
7. Other (specify) _____ ___

B. Which of the above do you feel influences the student most?

_____

_____

C. Within the school, how are students introduced to the program?

1. Assemblies ___
2. Counselors ___
3. Naval Science Instructors ___
4. Self-initiative ___
5. Other (specify) _____

D. Are students allowed to substitute NJROTC for any required course, such as physical education? _____

_____

E. What do you think are the reasons most students have for joining the program?

1. Navy family ___
2. Peers ___
3. Interest in Navy as an employer ___
4. Other (specify) _____

III. SELF-EVALUATION OF PROGRAM CONTENT AND PARTICIPATION

A. What are the most frequently reported occupational preferences of the students in the NJROTC Program? _____

_____

_____

B. Is the Navy included as a part of the classroom Occupational Information Course or career guidance program of the school?

Yes ___ No ___

C. To what extent do you perceive the success of your program to be determined by the number of students who join the Navy?

_____

_____

_____

D. Does the program attempt to develop interest in:

1. United States Naval Academy ___
2. College NROTC ___
3. Service in Navy as officer ___
4. Service in other branches as officer ___
5. Service in Navy an enlisted rating ___

E. Which of the following course objectives receive the greatest emphasis in the NJROTC course as you present it?

1. Developing respect for constitued authority ___
2. Promoting patriotism ___
3. Developing leadership and self-reliance ___
4. Developing an appreciation for U.S. Navy's role in the national defense structure ___
5. Employment ___
6. Other (specify) _____

F. What is the attrition rate of students from the program?

_____

_____

G. What generally are the characteristics of the terminees?

_____

_____

_____

H. What are the reasons most frequently given for leaving the program? _____

_____

_____

IV. CHARACTERISTICS OF NSI

A. How long have you been a Naval Science Instructor in this school? _____

B. Other experience as NSI: _____

_____

_____

_____
Name

_____
Rank

_____
Date

PART THREE

NJROTC STUDENT INTERVIEW

Name of School _____

Student's Classification: _____ Sophmore
_____ Junior
_____ Senior

* *

1. How did you find out about the NJROTC program? _____

_____

_____

2. Why did you join the program? _____

_____

_____

3a. What do you intend to do after high school? _____

_____

_____

3b. If Navy, how long have you thought of the Navy as your employment objective? _____

_____

_____

4. What is the most important thing you are learning in NJROTC?

_____

_____

_____

5. What is the attitude of non-participants toward the program?

_____

_____

_____

6. Why do you think students drop out of the NJROTC Program?

_____

_____

_____

_____

(Date)

APPENDIX D

NAVY INSTALLATIONS SELECTED BASED ON MAPMIS REPORT OF
ON-BOARD COUNT AS OF MARCH 1973
BUREAU OF NAVAL PERSONNEL

CALIFORNIA

San Francisco Area

- Alameda
- San Francisco
- Moffet Field
- Concord
- Vallejo
- Mare Island

Los Angeles - Long Beach Area

- Long Beach
- Port Hueneme

San Diego - Imperial Beach

Monterey

China Lake

Lemoore

CONNECTICUT

- Groton
- New London

WASHINGTON, D. C. AREA

FLORIDA

- Jacksonville
- Key West
- Mayport
- Orlando
- Pensacola

GEORGIA

- Albany

HAWAII

IDAHO

- Idaho Falls

ILLINOIS

- Glenview - Great Lakes

LOUISIANA

- New Orleans

MAINE

- Brunswick

MARYLAND

- Annapolis
- Bainbridge
- Ft. Meade
- Patuxent River

MASSACHUSETTS

Boston

MISSISSIPPI

Gulfport

Meridian

NEVADA

Fallon

NEW HAMPSHIRE

Portsmouth

NEW JERSEY

Lakehurst

NEW YORK

Brooklyn

Schenectady

PENNSYLVANIA

Philadelphia

Willow Grove

RHODE ISLAND

Davisville

Quonset Point

Newport

SOUTH CAROLINA

Charleston

TENNESSEE

Memphis-Millington

TEXAS

Chase Field
Corpus Christi
Dallas
Kingsville

VIRGINIA

Newport News
Norfolk
Portsmouth
Virginia Beach
Little Creek
Oceana

WASHINGTON

Puget Sound
Seattle
Whidbey Island

APPENDIX E

NJROTC-RELATED ENLISTMENT DATA BY ZIP CODE AND LOCATION, JULY 1972 THROUGH DECEMBER 1972

TABLE E.1

NJROTC-RELATED ENLISTMENT DATA BY ZIP CODE AND LOCATION, JULY 1972 THROUGH DECEMBER 1972

ZIP Code	Location	Total No. of Secondary Students (a)	No. of NJROTC-Related Students (b)	Expected Percent of NJROTC-Related Enlistees (b) ÷ (a)	Actual Percent of NJROTC-Related Enlistees	Difference
363	Abbeville/Headland, AL	10,097	700	6.9	3.4	- 3.5
358	Huntsville, AL	6,720	2,327	34.6	1.7	-32.9
352	Birmingham, AL	30,402	1,363	4.5	2.2	- 2.3
366	Mobile, AL	17,020	2,314	14.0	19.7	+ 5.7
719	Hot Springs, AR	5,770	1,164	20.2	16.7	- 3.5
900	Los Angeles, CA	72,438	2,387	3.3	.4	- 2.9
907	Lakewood, CA	22,318	3,872	17.3	5.9	-11.4
921	San Diego, CA	31,663	2,152	6.8	3.4	- 3.4
927	Santa Anna, CA	8,991	2,339	26.0	4.8	-21.2
926	San Clemente, CA	41,050	1,995	4.9	1.8	- 3.1
908	Long Beach, CA	13,799	3,028	21.9	6.1	-15.8
814	Montrose, CO	1,899	934	49.1	17.4	-31.7
339	Punta Gorda, FL	9,084	689	7.6	5.0	- 2.6
320	Green Cove Sp./Live Oak, FL	17,208	2,444	14.2	1.1	-13.1
326	Crystal River, FL	11,130	426	3.8	--	- 3.8
325	Pensacola/Milton, FL	14,071	6,472	46.0	37.0	- 9.0
327	Titusville, FL	20,886	2,390	11.5	20.2	+ 8.7
303	Atlanta, GA	49,086	3,225	6.6	1.8	- 4.8
300	Marietta, GA	26,869	1,199	4.5	2.4	- 2.1
834	Idaho Falls, ID	6,363	1,219	19.1	7.7	-11.4
832	Pocatello, ID	8,872	2,747	31.0	15.0	-16.0
611	Rockford, IL	11,250	536	4.8	14.6	+ 9.8
600	North Chicago/Wheeling, IL	72,504	3,556	4.9	3.4	- 1.5
511	Sioux City, IA	6,175	1,424	23.2	--	-23.2
662	Shawnee/Mission, KS	10,948	9,398	85.8	42.6	-43.2
412	Paintsville, KY	3,132	1,018	32.5	--	-32.5
405	Lexington, KY	7,040	2,132	30.3	6.1	-24.2
401-02	Louisville/Valley Station, KY	52,987	4,097	7.7	4.9	- 2.8
700	Marrero, LA	17,725	560	2.8	--	- 2.8
701	New Orleans, LA	36,938	672	1.8	2.4	+ .6
705	Crowley, LA	32,399	874	2.7	1.1	- 1.6
708	Baton Rouge, LA	14,385	1,406	9.8	--	- 9.8
712	Monroe, LA	22,432	2,118	9.4	4.3	- 5.1
040	Old Orchard, NE	12,253	324	2.6	4.5	+ 1.9
207	Hyattsville, MD	16,069	2,393	14.4	1.4	-13.0
010	Barre, MA	25,735	837	3.2	--	- 3.2
018	Woburn, MA	28,892	2,470	8.6	--	- 8.6
480	New Haven, MI	88,925	556	.6	.3	- .3
481	Livonia, MI	61,357	2,131	3.5	1.6	- .9
390	Canton, MS	17,783	1,275	7.1	5.3	- 1.8
393	Meridian/Collinsville, MS	19,187	801	4.2	--	- 4.2
648	Carl Junction, MO	7,223	612	8.5	--	- 8.5
591	Billings, MT	4,498	3,963	88.1	--	-88.1
031	Manchester, NH	7,202	1,325	18.4	--	-18.4
076	Montrose, NJ	29,894	1,002	3.4	1.7	- 1.7
871	Albuquerque, NM	19,509	5,318	27.0	27.0	--
875	Santa Fe, NM	7,508	1,360	18.1	30.0	+11.9
284	Wilmington, NC	12,487	1,246	10.0	6.7	- 3.3
282	Charlotte, NC	12,815	2,023	16.0	3.6	-12.4
287	Canton, NC	15,071	924	6.0	6.1	+ .1
275	Smithfield, NC	24,515	1,075	4.4	--	- 4.4

TABLE E.1 (Cont.)

ZIP Code	Location	Total No. of Secondary Students	No. of NJROTC-Related Students (b)	Expected Percent of NJROTC-Related Enlistees (b) ÷ (a)	Actual Percent of NJROTC-Related Enlistees	Difference
281	Pineville, NC	16,373	1,948	12.0	--	-12.0
432	Columbus, OH	24,131	865	3.6	.6	- 3.0
443	Akron, OH	18,944	1,789	9.4	--	- 9.4
446	Massillon, OH	18,748	800	4.3	--	- 4.3
451	Marion, OH	6,029	850	14.1	--	-14.1
746	Ponca City, OK	3,280	1,709	52.1	2.9	-49.2
151	McKeesport, PA	27,900	1,879	6.7	--	- 6.7
190	Levittown, PA	65,468	1,915	2.9	.4	- 2.5
028	Tiverton/East Greenwich, RI	34,156	1,944	5.7	1.6	- 4.1
298	Aikens, SC	10,597	1,463	13.8	8.8	- 5.0
290	Cayce, SC	20,251	1,264	6.2	6.4	+ .2
296	Anderson, SC	31,697	1,386	4.4	1.2	- 3.2
295	Florence, SC	29,168	1,456	5.0	1.6	- 3.4
294	Summerville, SC	31,239	681	2.2	1.2	- 1.0
379	Knoxville, TN	13,095	759	5.8	1.7	- 4.1
777	Beaumont, TX	7,636	3,533	46.3	20.4	-25.9
784	Corpus Christi, TX	12,172	9,671	79.5	63.3	-16.2
791	Amarillo, TX	7,368	2,336	31.7	18.4	-13.3
783	Kingsville, TX	7,928	1,235	15.6	13.8	- 1.8
775	Pasadena, TX	33,009	3,199	9.7	4.0	- 5.7
843	Brigham City, UT	5,072	1,807	35.6	40.0	+ 4.4
841	Kearns, UT	19,861	2,319	11.7	13.4	+ 1.7
840	Bountiful, UT	20,111	1,689	8.4	2.7	- 5.7
235	Norfolk, VA	12,652	6,469	51.1	28.4	-22.7
233	Hampton, VA	6,755	1,776	26.3	3.4	-22.9
234	Yorktown/Virginia Beach, VA	21,837	10,692	49.0	17.9	-21.1
825	Lander, WY	1,987	972	48.5	25.0	-23.5
	TOTALS	1,632,038	169,228	1.037	1.024	--

APPENDIX F

VARIABLES RELATING TO EMPLOYMENT IN THE NAVY AND OBJECTIVES OF NJROTC

TABLE F.1

VARIABLES RELATING TO EMPLOYMENT IN THE NAVY AND OBJECTIVES OF NJROTC

Variables	Description	Source	Page
I. PERSONAL CHARACTERISTICS			
A. Background			
1. Sex 1,2/	Different combinations of these characteristics may produce different probabilities of success in employment.	1/ ORI, Manpower Evaluation Study, Proposal, prepared for Office of Economic Opportunity, Washington, D. C., 22 November 1968.	62
2. Ethnic group 1,2/			
3. Age			
4. Employment status, earnings, general skills 1,2/			
5. Handicap			
6. Family background		2/ ORI, Interim Report on Tasks 1 to 5 of the Quantitative Analysis of the Concentrated Employment Program, Technical Memorandum 156-68, prepared for Chief, Cost Benefit Analysis, Division of Planning, Manpower Administration, Department of Labor, 7 November 1968.	42-44
7. Areas of residence			
8. Public assistance			
9. Education attainment			
10. Other aptitudes			
B. Attitudinal Information			
1. Unsatisfied objectives		ORI, Manpower Evaluation Study, Proposal, prepared for Office of Economic Opportunity, Washington, D. C., 22 November 1968.	63
2. Feelings toward work stiuation			
3. Expected treatment in work situation			
4. Aspiration level			
5. Expected wages and advancement opportunity			
6. Attitudes toward programs			
7. Attitude toward existing social mores			
8. Scholastic ability/school experience		Johnston, J. & Bachman, J. G., Youth in Transition, Young Men and Military Service, Volume V, Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, Michigan, 1972.	
a. Scholastic ability			
b. Classroom grades			
c. School failure			
d. School curriculum			
e. Delinquency in school			
f. Attitudes toward school			
9. Military-fit (job-fit)			
a. Need for self-utilization and advance-	Tasks in military life complement personal talents and interests.	" " " "	34-36
b. Reward			
c. Ease and independence	As Donald Super said: "...occupational choice theory - people seek out jobs...match their personalities...."		
d. Individual perception of environmental supply of things to satisfy need			
10. Vocational exploration			
a. Unsure person more likely to enlist than one with decision plans	Age 16-23 - experimentation with various vocational identities. Need for exposure to multitude of career possibilities without lifetime commitments.	" " " "	52-53
b. Environment provides chance to think things through			
c. Exposure to a variety of alternatives			

TABLE F.1 (Cont.)

Variables	Description	Source	Page
C. Six Dimensions of Well-Being			
1. Income	These dimensions may affect decisions to seek employment with the Navy.	Miller, S. M. & Roby, P., The Future of Inequality, 1970	
2. Basic service			
3. Assets			
4. Self-respect			
5. Opportunities for educational social mobility			
6. Participation in decision making			
D. Barriers to Mobility	These barriers may apply to employment as well as to mobility.		
1. Insufficient education		Bluestone, B., "The Tripartite Economy: Labor Market and the Working Poor," Poverty and Human Resources	23
2. Insufficient training and skills			
3. History of unreliable job performance			
4. Personal risk attached to mobility			
5. Lack of labor market information			
E. Special Characteristics and Problems of Disadvantaged			
1. Members of poor family	All people, to some extent, have these characteristics and problems.	ORI, Interim Report on Tasks 1 to 5 of the Quantitative Analysis of the Concentrated Employment Program, Technical Memorandum 156-68, prepared for Chief, Cost Benefit Analysis, Division of Planning, Manpower Administration, Department of Labor, 7 November 1968	42-44
2. Unemployed, underemployed or hindered from seeking work			
3. Being one or more of the following:			
a. High school dropout			
b. Minority group member			
c. Under 22			
d. Over 44			
e. Handicapped			
4. Inadequate work experience		Rosen, H., Guidance Counselors—A New Activist Role	
5. Poor education and training			
6. Discrimination because of ethnic origin			
7. Lack of information about employer's hiring requirements			
8. Lack of knowledge of where to apply			
9. Lack of knowledge about working conditions, wages, application forms, interviews, references			
10. Lack of knowledge about private employment agencies or free public employ services			
11. Lack of training opportunities			

TABLE F.1 (Cont.)

Variables	Description	Source	Page
II. INTERPERSONAL CHARACTERISTICS			
1. Quality of home environment		Johnston, J. & Bachman, J. G., Youth in Transition, Young Men and Military Service, Volume V, Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, Michigan, 1972.	
2. Family size			
3. Broken home			
4. Family relations	Boys from family with poor relationships tend to enlist more frequently.		
5. Father's and brother's military experience	(Also related to closeness of father and son).		
6. Individual perception of what parents and friends want him to do	Parents may encourage enlistment.		
7. Escape and opportunity	Service represents a choice to select one's self out of present environment into one that offers either escape or opportunity.		
8. Peer group modeling:			
a. Enlisting			
b. Planning to enlist			
III. EXTERNAL AND ENVIRONMENT FACTORS			
1. Local labor market conditions		ORI, Manpower Evaluation Study, Proposal, prepared for Office of Economic Opportunity, Washington, D. C., 22 November 1968.	65-66
2. Spatial configuration of the area			
3. Presence of institutional constituents			
4. Local political attitudes			
5. Local government structure			
6. Labor demand by city			
7. Employment level of area			
8. Political and social environment			
9. Average yearly income			
10. Retention in jobs and advancement within the same organization or between organizations		Rosen, H., Guidance Counselors—A New Activist Role	
11. Increased opportunity for further education			17
12. Effect of economic changes			19
13. Changes in structure of employment	From blue collar to white collar and service employment opportunities.	Rosen, S. M., "Manpower: Issue and Policy," Poverty and Human Resources, September-October 1970, Institute of Public Adm.	19
14. Growth in importance of occupations in field of human services			
15. Lack of education which may widen access to good jobs			
16. Importance of and reliance on educational credentials			25
17. Job security			25
18. Relatively low and rigid salary levels			25
19. Reliance on written testing for appointments and promotions			

TABLE F.1 (Cont.)

	Variables	Description	Source	Page
20.	Changes in school enrollment		Travis, Sophia C., "The U.S. Labor Force: Projections to 1985," Monthly Labor Review, May 1970.	3-4
21.	Changes in occupational requirements			
22.	Changes in retirement patterns			
23.	Changes in extent of women's desire or need to work			
24.	Effect of defense — generated employment	Increases or decreases in civilian employment.	Oliver, R. P., "Increases in Defense Related Employment During Vietnam Buildup," Monthly Labor Review, February 1970.	3
25.	Increased unemployment positively correlated with enlistment	Unemployment and area wage levels might have become stronger determinants of enlistment as country extricated itself from involvement in Vietnam.	Johnston, J. & Bachman, J. G., Youth in Transition, Young Men and Military Service, Volume V, Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, Michigan, 1972.	
26.	Wages in civilian job market			
27.	Region - enlistment more popular among Southerners	Enlistment more popular with Southerners. (Not confirmed by present study.)		
28.	Urbanicity			
29.	Socioeconomic	Enlistment more frequent with lower class.		
IV.	PROGRAMS AND SERVICE PARTICIPATION AND FOLLOW-UP INFORMATION (Some of Which Are Applicable to an NJROTC Study)			
1.	Test scores [1,3]		[1] ORI, Manpower Evaluation Study, Proposal, prepared for Office of Economic Opportunity, Washington, D. C., 22 November 1968.	
2.	Training received			
3.	Counseling received			
4.	Education received [1,3]			
5.	Job placement			
6.	Wages			
7.	Job description			
8.	Opportunity for further training & advancement			
9.	Services received			
10.	Dropout point			
11.	Reasons for dropping out			
12.	Recycles and repeats			
13.	Changes in taxes paid/descreases in public assistance; waiting time; earning during training phase			
14.	Enrollee recruitment [2,3]	Job placement and benefits are a function of the availability and effect of program services.	[2] ORI, Interim Report on Tasks 1 to 5 of the Quantitative Analysis of the Concentrated Employment Program, Technical Memorandum 156-68, prepared for Chief, Cost Benefit Analysis, Division of Planning, Manpower Administration, Department of Labor, 7 November 1968.	43-44
15.	Coaching and counseling services [2,3]			
16.	Vocational rehabilitation			
17.	Transportation			
18.	Orientation			
19.	Remedial education			
20.	Job opportunities			
21.	Follow-up services			
22.	Impact of program/project			
23.	Pre-vocational and vocational training programs [2,3]		[3] USDOL, Breakthrough for Disadvantaged Youth USDOL Manpower Adm. in Poverty and Human Relations, March-April 1970.	
24.	Job placement/creation			
25.	Use of nonprofessionals in MDTA programs			

TABLE F.1 (Cont.)

Variables	Description	Source	Page
26. Individual job training - combining skill training and supportive services		Ramsey, W. R., "Production and Quality Control in Training," Technical Training for the Disadvantaged, Poverty and Human Relations, August 1969.	19-22
27. Preparation for long-range productivity by stressing process and content of training			
28. Improving the quality of trainee's life	Personal concern for each trainee that will aid him in changing his self-image and foster good interpersonal relationships.		
29. Institutionalization	Of the process of training and its component parts without forming a rigid pattern which cannot be changed.		
A. School Counseling and Military Service			
1. Course selction			
2. Course work problems			
3. Trouble in school			
4. Personal problems			
5. Military plans and obilizations			
6. Plans for educational training			
7. Career or job choice			
8. Procedure and application for getting a permanent job after high school			
V. INTERNAL ORGANIZATIONAL FACTORS WHICH CAN AFFECT EMPLOYMENT STABILITY (And Thus Have Effects on Recruitment in the Feedback Loop)			
1. Rationalization of work and work hierarchies, leading to the construction of career or promotional ladders		Rosen, S. M., "Manpower: Issue and Policy," Poverty and Human Resources, September-October 1970, Institute of Public Adm.	
2. Preparation of incumbent workers to fill future vacancies through in-service training (where appropriate) formal education			
3. Utilization of supervisors and professionals employees as trainers with a career preparation responsibility to subordinates			
4. Development of a system of motivation and reward for upward progress			
5. Re-examination of standardized requirements for jobs in upper levels			
6. Effects of systematic restructuring of promotional and upgrading links within employment system			
7. Effects of built-in education as part of regular workday or work year			
8. Education provided close to or on work site			
A. Organizational and Performance Variables			
9. Organizational variables			
a. Centralization	Perception of members of the organization. Salary ratio of upper-to-lower-echelon personnel. Time frequency of supervisory checks.	Palumbo, D. J., "Power and Role Specificity in Organization Theory," Public Administration Review, Volume 29, No. 3, May-June 1969.	
b. Formalization	Amount of work covered by written rules.		

TABLE F.1 (Cont.)

Variables	Description	Source	Page
c. Specialization	Percent of total employees in a program that work exclusively in that program.		
d. Span of control	Average number of persons supervised directly by major division heads		
e. Styles of management	Felt pressure. Number and usefulness of meetings. Supervisor empathy. Degree of uncertainty in work. Supervisory competence in administrative, technical, & personal matters. Openness of communications.		
f. Professionalization	Years of professional or graduate school training.		
g. Role conflict	Differences in norms about what the role of the health officer is and should be.		
h. Morale	Satisfaction with work.		
i. Goal agreement	Amount of disagreement in a department about the proper kind of action that should be taken in clinics, treatment, and in regard to the wider community.		
10. Output of performance variables			
a. Productivity	Ratio of services performed to man-hours put into each of five programs.		
b. Per unit costs	The cost in dollars to deliver one unit of service in each of the five program areas.		
c. Self-evaluation	Rating of total department by members of the department.		
d. Scope of programs	Number of different services offered and amount of effort in each.		
e. Innovation	Percent of total effort devoted to new programs.		
11. Reasons for reenlistment		Johnston, J. & Bachman, J. G., Youth in Transition, Young Men and Military Service, Volume V, Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, Michigan, 1972.	
a. Desire for Navy career			
b. Navy career opportunity looked better than civilian life			
c. Desire to serve country			
d. Technical training opportunities			
e. Desire to travel			
f. Fulfill military obligation at own time of choice			
12. Other variables which could affect Navy enlistments			
a. Effectiveness of programs designed to help disadvantaged youth		Ginzberg, Eli, "Manpower — The Cutting Edge of Policy," Poverty and Human Resources, March-April 1970.	
b. The extent to which high unemployment rates reflect a refusal to accept jobs at minimum wages			

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13. ABSTRACT

The study attempted to discern and explain a positive relationship between Naval Junior Reserve Officers Training Corps (NJROTC) and Navy enlistments.

Through analysis of enlistments of persons from the 91 Zip Code Areas when NJROTC programs are present, it was found that no consistently positive relationship between NJROTC and Navy enlistments exists.

On the basis of a small number of interviews with Naval Science Instructors and students, it was also tentatively concluded that NJROTC units vary greatly; that they are fully integrated with the curricula of the local schools; that they appear to be subject to the same pressures as are other voluntary courses; that the Naval Science instructors appear to be sensitive to overall school and community trends.

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